LABOMED INC.

2921 S. La Cienega Blvd.
Culver City, CA 90210 U.S.A .
Tel.: (310) 202-0811/14
Fax: (310) 202-7286
Website: www.labomed.com
Email: spectro@labomed.com
Email: labomed1@aol.com

USER'S MANUAL

FACA-261

Biochemistry analyzer

LABOMED,INC.

LABOMED INC.

2921 S. La Cienega Blvd.
Culver City, CA 90210 U.S.A .
Tel.: (310) 202-0811/14
Fax: (310) 202-7286
Website: www.labomed.com
Email: spectro@labomed.com
Email: labomed1@aol.com

PREFACE

Thank you for purchasing LABOMED, INC.'S FACA-261 biochemistry analyzer.

This manual introduces safety and the correct use of LABOMED, INC.'S FACA-261 biochemical analyzer, read it carefully before use.

■ Precautions in using this manual

- Before using the biochemistry analyzer, please read this manual thoroughly and understand it for relevant operation instructions.
- Without LABOMED, INC.'S permission, can't copy and duplicate any manual chapters.
- Please keep this manual properly for convenient use.

■ Whom and What this manual is for

This manual is written for clinical laboratory professionals, explain how to operate FACA-261 semi-automatic biochemical analyzer

- Intended User

  People who received professional training from LABOMED, INC. will available to read this user manual to learn more information about FACA-261. It is necessary to read it carefully before using FACA-261.

- Purpose

  Help user to understand the performance of FACA-261 well and operate machine well.

■ Safety symbol marks used in this manual

Ensure to understand well the signs below, it is important to you!

When you see...	Then…
Warning	This signs is warning you that a wrong operation will cause serious injury.

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Caution

This sign is warning you machine system was damaged or in an unreliable situation.

Note

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This sign warning you some important information that requires your Note.

Biohazard	This sign warning you that will cause a potentially biohazardous condition.

■ Labels used on the System

The labels attached to the panels of the system use symbols to clarify the meaning of the text. The list below shows the symbols that are used on the analyzer.

Symbol	Meaning
SN	Serial number
	Biohazard Warning: risk of potentially biohazardous infection
|	ON(main power)
○	OFF(main power)

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Warranty

- Professional use only, LABOMED, INC. won't be response for any damages because of wrong cooperation.
- LABOMED, INC. will give customer 1 year warranty of FACA-261 since purchase date, except below conditions:
  - Damage cause of natural calamities, such like flood, fire etc.
  - Wrong operation.
  - Consumables and accessories of FACA-261.
  - Damage cause of customer open or repair machine without LABOMED, INC. authorization.
  - Damage cause of aspirating strong corrosive materials.
  - Wrong operation cause software crash.

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1. PRECAUTIONS ON USE AND INSTALLATION ENVIRONMENTS

1.1. Safety cautions

For safety and effective use，Please obey the following conditions.

■ Prevention of Breakage and Flammability

Warning

- FACA-261 must be installed in right place and good conditions refer to the manual.
- FACA-261 has to be installed in an unsuitable environment, please contact LABOMED, INC. first.
- Removing any screws on the rear panel of machine is forbidden.
- If any liquid comes into the inside of machine, please contact LABOMED, INC..

■ Preventing infection

Biohazard

- Inappropriately handling test solution, waste solution may lead to biohazardous infection. Do not touch the test solution, waste solution with your hands. Wear gloves and lab coat, and goggles if necessary.
- In case your skin contacts the test solution or waste solution, follow standard laboratory safety procedure and consult a doctor.

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Preventing Personal Injury Caused by Lamp house

Warning

- Light sent by the lamp house may hurt your eyes. Do not stare into the lamp when the system is in operation.
- If you want to replace the lamp house, first switch off the MAIN POWER and then wait at least 15 minutes for the lamp to cool down before touching it. Do not touch the lamp before it cools down, or you may get burned.

Precautions on use

For getting best test results, please obey the following conditions.

Note

- Please don't shake or touch the machine when it is working; otherwise it will influence test result.
- Quality control is necessary to use for checking that the machine is in good working condition or not.
- Daily maintenance is very important. Unstable test results and short service life are mostly caused by carelessness.
- Process calibrator, controls and reagent please refer to their instruction.
- Volume of sample and reagent, corrected value of wavelength and incubation time must accord with the instruction of reagent kits , calibrator kits or control kits.
- Any doubts of operation, please read the user manual first.

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1.2. Installation environment

Caution

Make sure the instrument is installed in a place meeting following requirements. Otherwise, it will not perform as promised.

1.2.1. Installation environment conditions

- The instrument is for indoor use only.
- The bearing platform should be level (gradient less than 1/200).
- The bearing platform should be free of shaking.
- The installation site should be well ventilated.

Caution

The instrument radiates heat while operating. A well ventilated environment helps keep the room temperature stable. Use ventilation equipment if necessary.

- The installation site should be free of dust as much as possible.
- The installation site should not be in direct sun.
- The site should not be near a heat or draft source.
- The installation site should be free of corrosive gas and flammable gas.
- The site should not be disturbed by large noise or power supply.
- The instrument should not be placed near brush-type motors and electrical contacts that are frequently turned on and off.
- Do not use such devices as mobile phones or radio transmitters near the instrument. Electromagnetic waves generated by those devices may interfere with operation of the instrument.
- The altitude height of the installation site should be lower than 2000 meters.

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1.2.2. Temperature and humidity conditions

- Ambient temperature: 15℃~30℃, with fluctuation less than ±2℃/H.
- Relative humidity: 35%RH - 80%RH, without condensation.

Note

37℃ apply to most reagent kits, but FACA-261 also can work at 25℃ and 30℃. Make sure the room temperature isn't higher than the selected temperature.

Caution

Operating the instrument in an environment other than the specified may lead to unreliable test results.

If the temperature or relative humidity does not meet the above-mentioned requirements, be sure to use air-conditioning equipment.

1.2.3. Power Requirements

- Power supply: AC 110V±10%, 50/60Hz.
- Three-wire power cord, which should be grounded properly.
- The distance between the power socket and the system should be less than 2.5 meters.

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2. SYSTEM DESCRIPTION

2.1. Outline of functions

The instrument is biochemistry analyzer for in vitro diagnostic use in clinical laboratories and designed for in vitro quantitative determination of clinical chemistries in serum, plasma, urine or cerebrospinal fluid samples.

Caution

Some samples may not be analyzed on the instrument based on parameters the reagents claim capable of testing. Consult the reagent manufacturer or distributor for details

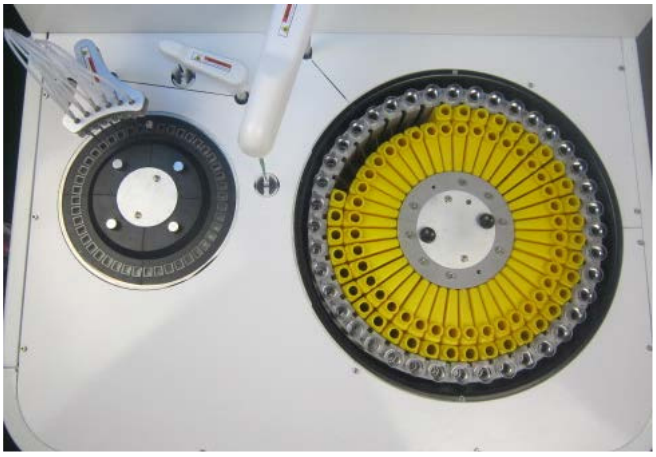
2.2. Appearance of instrument

Mixture arm

Washing arm

Reaction tray

Dispensing arm



Sample tray

R1 tray

R2 tray

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3. INSTALLATION

The system should be installed by our authorized personnel only, and you should prepare a proper site for installation.

3.1. Unpacking

When you receive the system, carefully inspect the package. If you see any signs of mishandling or damage, file a claim immediately with our Customer Service Department or your local distributor.

After opening the package, check the delivered goods against the packing list as well as the appearance of the system. If you find anything missing or damaged, alert our Customer Service Department or your local distributor immediately.

3.2. Connection

- Connect power cable from analyzer back side to power socket.
- Connect USB cable from analyzer back side to operation computer USB port.
- Connect DI water tube to DI water bucket.
- Connect H waste tube to waste bucket or direct to Drain Facilities.
- Connect L waste tube to waste bucket or direct to Drain Facilities.
- Connect DI water liquid sensor form DI water bucket to analyzer back side.
- Connect Waster liquid sensor form DI water bucket to analyzer back side if necessary.

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4. BASIC OPERATION

4.1. General operating procedure

Preparing for analysis

- Checking before power on
- Powering on
- Starting operation software
- Setting up the analyzer
- Preparing the reagents
- Air purge

Starting analysis

- Programming Calibrators
- Programming QC
- Programming routine samples
- Editing test results
- Print test reports

Finishing analysis

- Powering off
- Checking

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4.2. Preparing for analysis

4.2.1. Checking before powering on

You should do the following operations before starting the analyzer.

- Check the power supply and make sure it can supply proper voltage for the analyzer.
- Check the USB connections among the analyzing unit and computer. Make sure the connections are right and secure.
- Check the DI water bottle and liquid sensor connection well.
- Check the waste tube and liquid sensor connection well.
- Check the recycle liquid is sufficient.

4.2.2. Powering on

Power on the analyzer in the sequence presented below:

- Switch on the main power;
- Switch on the Device power;
- Switch on the Cooler power if necessary

4.2.3. Starting the operation software

- Start the Windows operating system. Then double click

to start operating software
- The ***Login*** dialog box of the operating software is displayed. Enter the username and password, and then select ***Login***.

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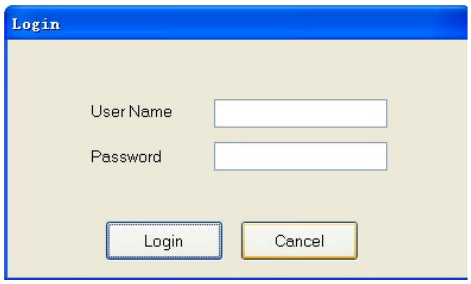

4.2.4. Setting up the analyzer

The analyzer will not function properly unless it is properly set up.

You must complete all the following settings if this is the first time the analyzer being used.

Before requesting the tests, you must finish the following settings:

- **Reagent settings:** Select ***Reagent →Reagent settings***, and enter test parameters following the reagent package insert. Refer ***5.1.1 Reagent settings*** for details.
- **Reagent status:** Select ***Reagent →Reagent status***, and set up the reagent bottle information. Refer ***5.1.2 Reagent status*** for details.
- **QC *settings*:** Select ***QC→ QC settings***, and set up controls information. Refer ***5.4.2 QC settings*** for details.
- **System settings:** Select ***System***, and set up profile, calculated test, Dictionary, User, Report format, and test order. Refer ***5.6 System setting*** for details.

4.2.5. Preparing the reagents

Load reagent bottles to their assigned positions on the reagent tray, and then open the bottles.

4.2.6. Air purge

Executing Air purge in maintenance window. When you do analysis first time. Air bubbles come into dispensing tube, Execut Air purge to get rid of those air bubbles, The flow path is filled with new water. Refer ***5.5 Maintenance*** for details.

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4.3. Starting analysis

4.3.1. Programming Calibrators

When using the system for the first time, you must run calibrations following these steps:

- Select ***Calibration → Calibration register*** and register calibration for desired tests. Refer to ***5.3.1 Calibration register*** for details.
- After registering calibrations, you should load corresponding calibrators to their assigned positions on the sample tray.
- Select the ***Start condition*** to start running the calibrators. Refer to ***5.7Start condition*** for details
- To view calibration results. Select ***Calibration → Calibration results*** and select a test from the list. Refer to ***5.3.2 Calibration results*** for details.

4.3.2. Programming QC

It is recommended to run quality controls for each test everyday and check if the system is running normally and steadily.

- Select ***QC→ QC register*** and register QC for desired tests. Refer to **5.4.1 *QC register*** for details.
- After registering QC, you should load corresponding QC to their assigned positions on the sample tray.
- Select the Start condition to start running the calibrators. Refer to **5.7 *Start condition*** for details
- To view QC results. Select ***QC→ QC results*** and select a test from the list. Refer to ***5.4.3 QC results*** for details.

4.3.3. Programming routine samples

Follow this procedure to analyze routine samples:

- Select ***Test→ sample register*** and register samples for desired tests. Refer to **5.2.1 *Sample register*** for details.
- After registering sample, you should load corresponding sample to their assigned positions on the sample tray.
- Select the ***Start condition*** to start running the samples. Refer to **5.7 *Start condition*** for details
- To view sample results. Select ***Test→ Sample results*** and select a sample from the list. Refer to **5.2.2 *Sample results*** for details.

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4.3.4. Editing test results

When analysis is finished, you can edit the test results if needed

To edit results of one or more sample runs, you can select ***Test→ Sample results.*** then select the ***Edit*** button and edit desired test result on the popup dialog box. Refer to ***5.2.2 sample results*** for details.

4.3.5. Print test reports

Select ***Test→ Sample results*** then select desired test results and click the ***Print*** button. Refer to **5.2.2 *sample results*** for details.

4.4. Finishing analysis

4.4.1. Powering off

When all analysis is finished and the system is in standby status.

After exiting the Windows operating system, switch off the Device power.

The refrigerator still functions after switching off the Device power. To shut down the refrigerator, switch off the cooler power and main power.

4.4.2. Checking

If the MAIN POWER is placed to OFF, take the reagents from the reagent tray and put them into an external refrigerator

Remove the calibrators, controls and samples from the sample tray.

Check the surface of the analyzing unit for stains and wipe them off with clean soft cloth, if any.

Check the waste bucket and empty it if necessary.

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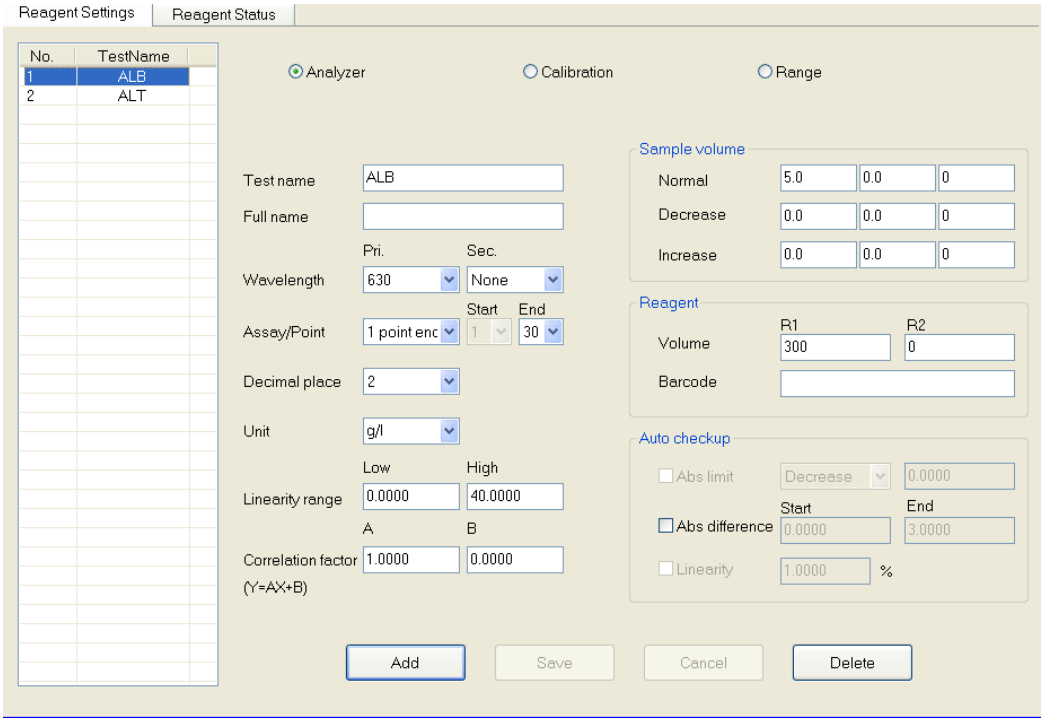
5. ADVANCED OPERATION

5.1. Reagent

5.1.1. Reagent settings



This screen allows you to set an assay code, photometric point, measuring wavelength, sample volume and reagent volume and other chemistry parameters.

- **Test name:** Input a photometric test name to be used for screen display within 5 characters.
- **Full name:** input full name for print out in report format. It can be void.
- **Wavelength:** Select a primary wavelength in the left box and a secondary wavelength in the right box among 8 wavelengths (340,405,450,505,546,578,630 and 700nm).
  For single-wavelength photometry, select “None” in the Secondary wavelength list box.
- **Assay/Point:** Select an assay mode (1 point end,2 point end, Fixed-time, Kinetic); then Input photometric points.
  The unit is period by default, which equals to 18 seconds.

  For the 1 point end method, the point refers to the end of the reaction. Only the end point need to be inputted.

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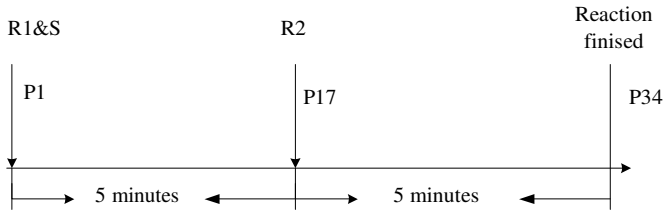
For the 2 point end method, the start point refers to the R1 and sample mixture. The end point refers to the end of the reaction.

For the Kinetic or Fixed-time method, the start and end point refers to the interval between the point when the reaction becomes stabilized.

When entering the reaction time in period, please refer to the following reaction procedure.



- **Decimal place:** Select the number of decimal place of test result (0,1,2,3,4).
- **Unit:** Select or input the test result unit.
- **Linearity range:** Input linearity range of test result.
- **Correlation factor:** Input instrument factors (A:gradient,B:intercept) for correcting the result of the measurement.
- **Sample volume:** Input sample volumes for Normal, Decrease and Increase.
  Input a sample volume before dilution in the left box, a sample volume after dilution in the middle box and a diluents volume in the right box.
  - **When automatic sample dilution function is not used:**

  Left box: Input a sample volume (3 to 30.0ul).
  Middle and right boxes: Input "0"
  - **When automatic sample dilution function is used:**

  Left box: Input a sample volume before dilution (3 to 30.0ul).
  Middle box: Input a sample volume after dilution (3 to 30.0ul).
  Right box : Input a diluents volume (30 to 300ul).
  The sample volume before dilution (left box) is diluted with the diluents volume (right box).
  The total volume of liquid must be brought to 150ul or more due to stirring.
- **Reagent volume:** For R1 and R2, input a reagent volume. After addition of R1, R2 is added in about 5minutes.
  Input a reagent volume in a range of 30 to 300ul. Input "0"when reagent pipetting is not desired. The minimum volume that allows absorbance measurement is 150ul.
- **Barcode:** Input the code number of the reagent bottle .For the reagent bottle without barcode, the bottle code need not be input.

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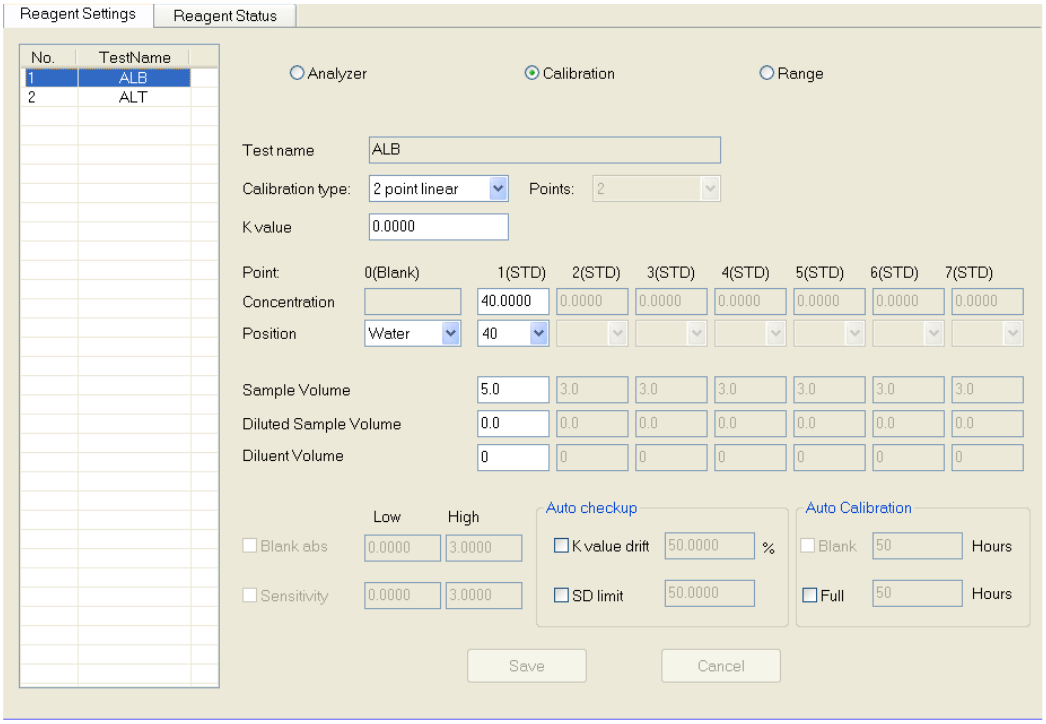

- **Calibration type:** Select a calibration type.
- **Points:** Input the number of standard solutions to be used for calibration (1 to 6)
- **K value:** Input K value when calibration type is 1 point linear.
- **Concentration:** Input concentration of standard solution. when preparing multiple dilution lines with a single standard solution, input concentration after dilution.
- **Position:** For point 0, select water blank or reagent blank. For point 1-7, select a position of standard solution on sample tray.
- **Sample volume:** Input a sample volume (3 to 30.0ul) for calibration. When diluting the standard solution with the sample dilution function, input a sample volume before dilution.
- **Diluted sample volume:** Input a sample volume after dilution (3 to 30.0ul) when the standard solution is diluted with the sample dilution function.
  To avoid dilution, input"0".
- **Diluent volume:** Input a diluents volume (30 to 300ul) when the standard solution is diluted with the sample dilution function.
  Do not bring the total volume of sample and diluents before dilution to 150ul or more due to stirring.
  To avoid dilution, input"0".

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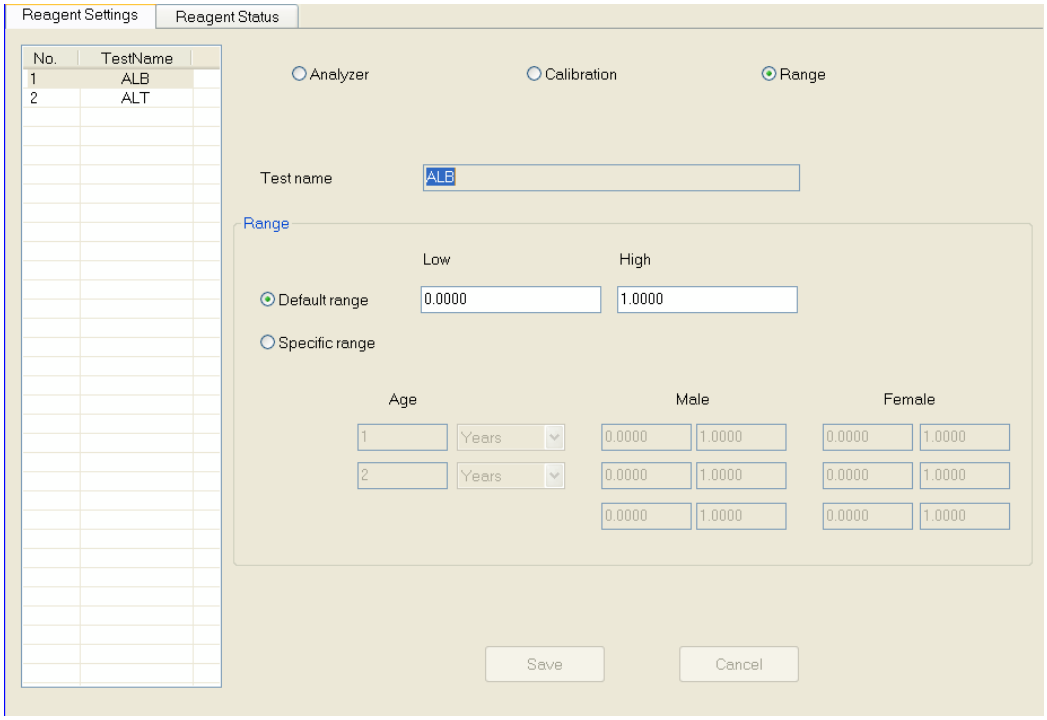

Input the test result range, if the finally result is out of the range, it will be marked L or H in the result list and report.

Default range: Input default range if select this radio button.

Specific range: Set specific ranges in 3 age blocks each for male and female. Input an upper limit of age (0 to 200) for application of the specific range, unit of age (Years, Months or Days)and upper and lower limits of the specific range in this order from the left.
The specific range at the 3rd stage is applied to the age exceeding the input one at the 2nd stage.

2921 S. La Cienega Blvd.
Culver City, CA 90210 U.S.A.
Tel.: (310) 202-0811/14
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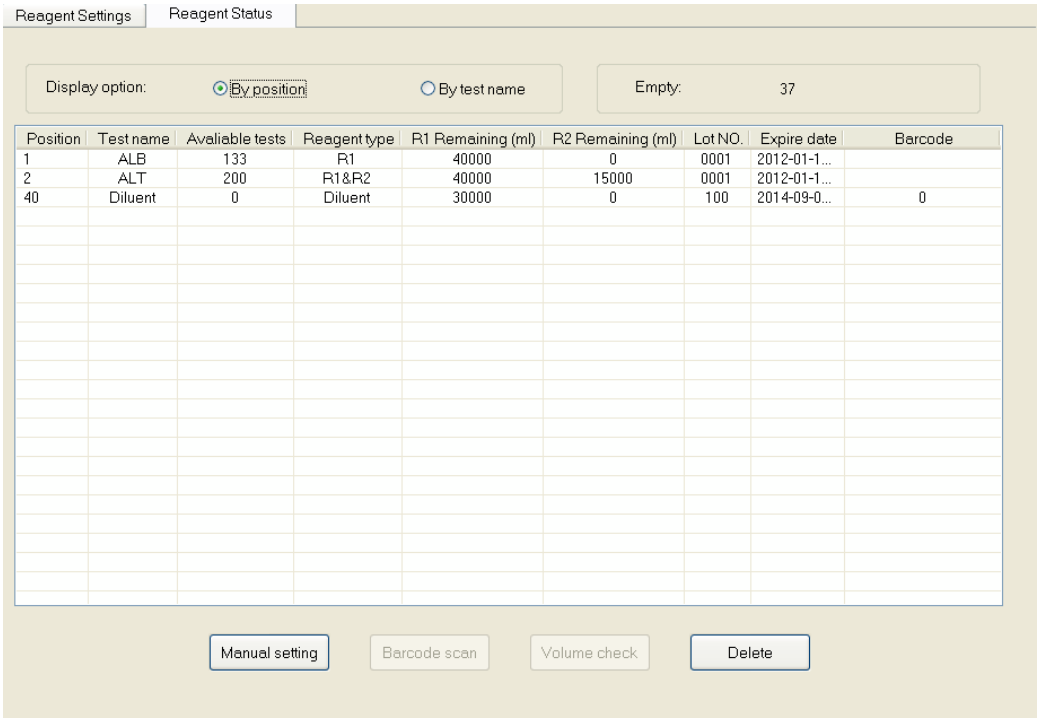
5.1.2. Reagent status



This screen allows you to set the reagent bottle information after Reagent settings, and then load reagent bottles to their assigned positions on the reagent tray.

- **Display option:** Choose a display order of below reagent list;
- **Empty:** Display how many positions are idle of reagent tray;
- **Reagent information list:** Information on the reagent bottle loaded in the reagent tray is displayed.
  - **Position:** The reagent bottle loading reagent tray number are displayed.
  - **Test name:** The test name, diluent are displayed;
  - **Available tests:** The number of available tests that has been calculated from the remaining volumes of all the reagents to be used is displayed.
  - **R1 remaining (ml):** The remaining volume of reagent 1 is displayed.
  - **R2 remaining (ml):** The remaining volume of reagent 2 is displayed.
  - **Lot No.:** The lot number of reagent is displayed.
  - **Expire date:** The expire date of reagent is displayed.
  - **Barcode:** The barcode of reagent bottle is displayed.
- **Manual setting button:** Click this button to open the Reagent Manual Setting window.
  In this window, you can register bottle information for a reagent bottle. Refer below for details.
- **Delete button:** Click this button to open the Delete window.
  In this window, you can delete manually registered reagent bottle information.

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Culver City, CA 90210 U.S.A .
Tel.: (310) 202-0811/14
Fax: (310) 202-7286
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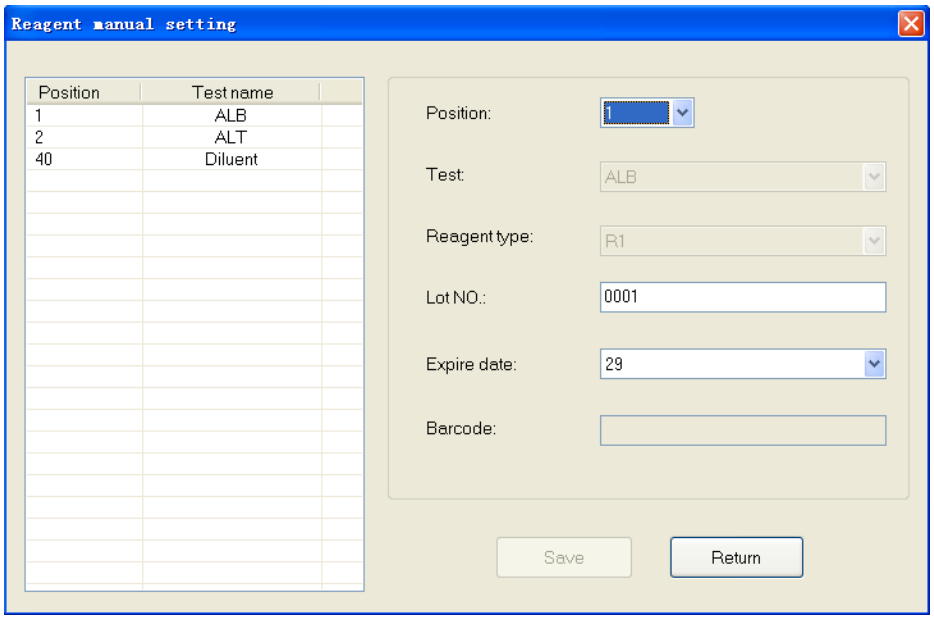
Email: spectro@labomed.com
Email: labomed1@aol.com



Follow this procedure to set a reagent information

- **Position:** Select a position;
- **Test:** Select a test;
- **Reagent type:** Select singe reagent or double reagent of this test;
- **Lot No.:** Input the lot number of the reagent;
- **Expire date:** Select a expire date of the reagent;
- **Save button:** Click this button to save configuration.
- **Return button:** Click this button to return Reagent status window.

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Culver City, CA 90210 U.S.A.
Tel.: (310) 202-0811/14
Fax: (310) 202-7286
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Email: spectro@labomed.com
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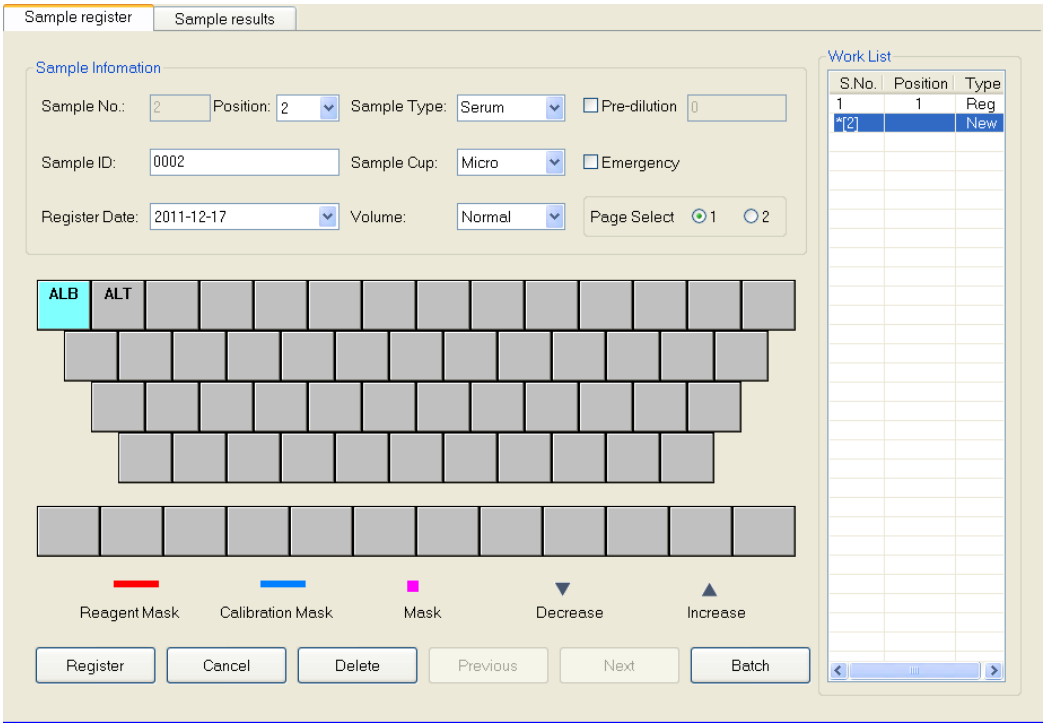
5.2. Test

5.2.1. Sample register



This window allows you to register tests for routine and emergency samples.

- **Sample information:**
  - **Sample No.:** Input a sample number, it is also the test sequence of samples except emergency;
  - **Position:** Select a position number on sample tray (1-40);
  - **Sample type:** Select a sample type;
  - **Pre-dilution:** If the sample has already diluted before register, select this check box and input dilution factor in right box, the test absorbency will multiply this factor automatically;
  - **Sample ID:** Input a sample ID number;
  - **Sample cup:** Select a sample type (Standard Cup or Micro Cup). For use of a test tube, select Standard Cup;
  - **Emergency:** Select the check box if the sample is emergency, and it has highest test priority;
  - **Register Date:** Select the register date of the sample, the default is current operation system date;
  - **Volume:** Select a sample volume (Normal, decrease, increase);
  - **Page select:** Select test key pages 1 and 2.
- **Test keys:**

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Email: spectro@labomed.com
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Use these keys for test selection.
When a test key is selected, it is highlighted in blue.
The keys on the top to the fourth row are available as test keys.
The bottom (fifth) row contains profile keys for grouped tests registered in the ***System setting/Profile*** settings window.
Reagent mask: Indicates that automatic masking has been made such a condition as insufficient remaining volume of reagent.
Calibration mask: Indicates that automatic masking has been made such a condition as insufficient remaining volume of standard solution.
Mask: Indicates that masking is provided in the ***global menu/Start Condition*** window.
Decrease: A decreased volume of sample is to be pipetted.
Increase: A increased volume of sample is to be pipetted.

- **Work list:** Display the registered sample after clicking register button.
  S.No.: Display the sample number of registered sample after clicking register button.
  Position: Display the position on sample tray of registered sample after clicking register button.
  Type: Display the type (Registered, New) of the sample.
- **Register button:** Click this button to save test selection information, update the work list and increment the sample number by one so that test selection can be made for the next sample.
- **Cancel button:** Click this button to cancel any modification of the window.
- **Delete button:** Click this button to open Delete samples window. In this window, you can delete samples has already registered.
- **Previous button:** Click this button to display test selection information on the previous sample.
- **Next button:** Click this button to display test selection information on the next sample.
- **Batch button:** Clicking this button opens the Batch Test Selection window.
  To register the same test, sample type, sample cup, sample volume, for two or more samples, select a test for the first sample for collective entry and click the OK button instead of the Register button.

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Culver City, CA 90210 U.S.A .
Tel.: (310) 202-0811/14
Fax: (310) 202-7286
Website: www.labomed.com
Email: spectro@labomed.com
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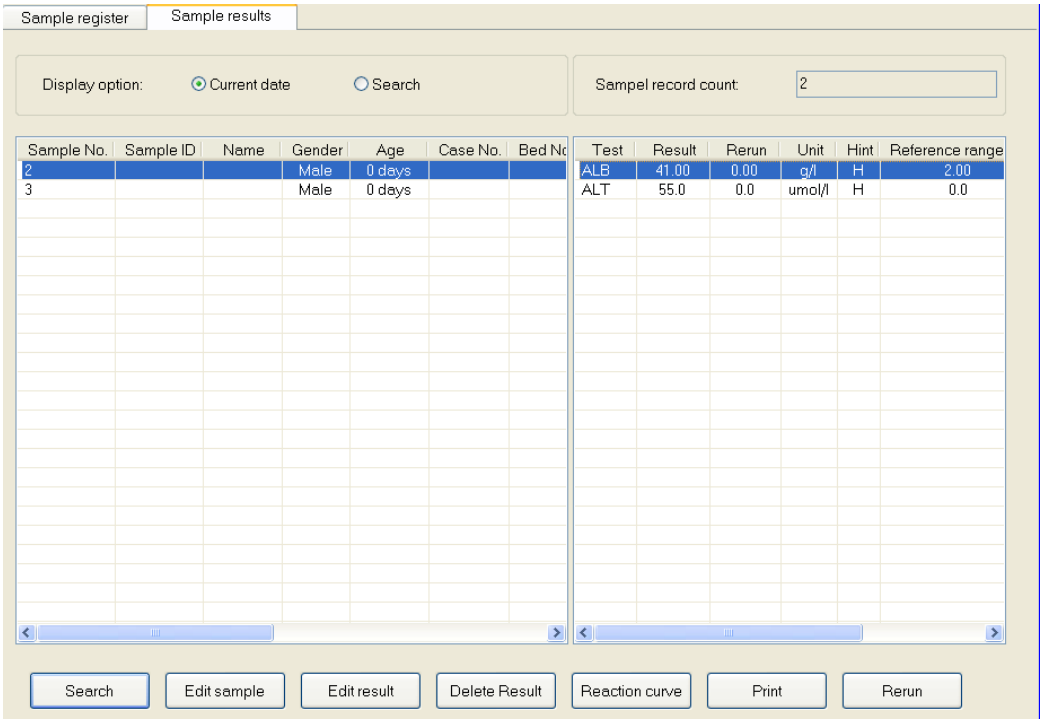
5.2.2. Sample results



This screen allows you to check/edit the respective measurement results of routine samples, view the reaction process, and print out the report.

- **Display option:** Select a condition for listing.
  - **Current date:** Only the Information on all samples registered on current day is displayed.
  - **Search:** Only the information on the sample specified in the Search window is displayed.
- **Sample record count:** The number of samples registered in the selected data source is displayed.
- **Search button:** Click this button to open Search sample window.
  In this window, you can set a search condition for the sample to be displayed in the sample list.
- **Edit sample button:** Click this button to open Edit sample window.
  In this window, you can edit sample information.
- **Edit result button:** Click this button to open Edit result window.
  In this window, you can edit measurement results.
- **Delete result button:** Click this button to open delete result window.
  In this window, you can delete samples and results.
- **Reaction curve button:** Click this button to open reaction curve window.
  In this window, you can view reaction curve of selected sample tests.
- **Print button:** Click this button to print one or more selected samples results

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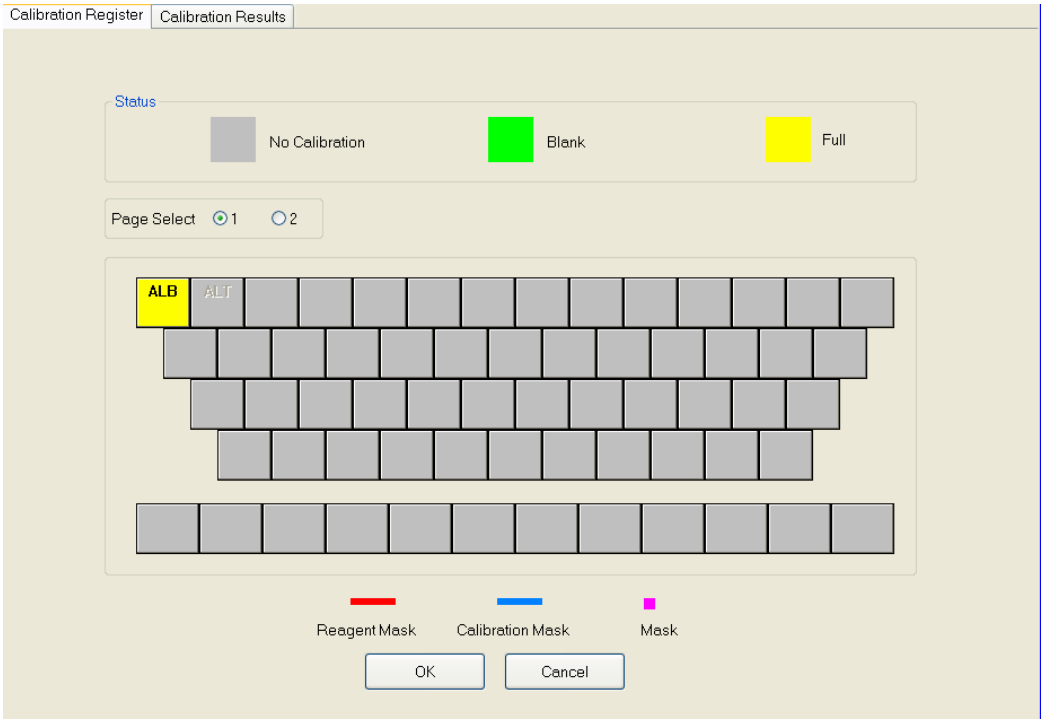
Culver City, CA 90210 U.S.A .
Tel.: (310) 202-0811/14
Fax: (310) 202-7286
Website: www.labomed.com
Email: spectro@labomed.com
Email: labomed1@aol.com

5.3. Calibration

5.3.1. Calibration register



This window allows you to register calibration for reagent and full (reagent blank and all standard solution).

- **Status:**
  Gray: The test has no calibration.
  Green: The test only does reagent blank calibration.
  Yellow: The test does calibration including blank and standard solution.
- **Test keys:**
  Click the test keys to select the calibration status, a manual switchover is made by clicking test key, if define water blank in Reagent/Reagent settings window. There is no blank status switchover.
- **OK button:** Click this button to save the configuration.
- **Cancel button:** Click this button to cancel any modification.

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Culver City, CA 90210 U.S.A .
Tel.: (310) 202-0811/14
Fax: (310) 202-7286
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Email: spectro@labomed.com
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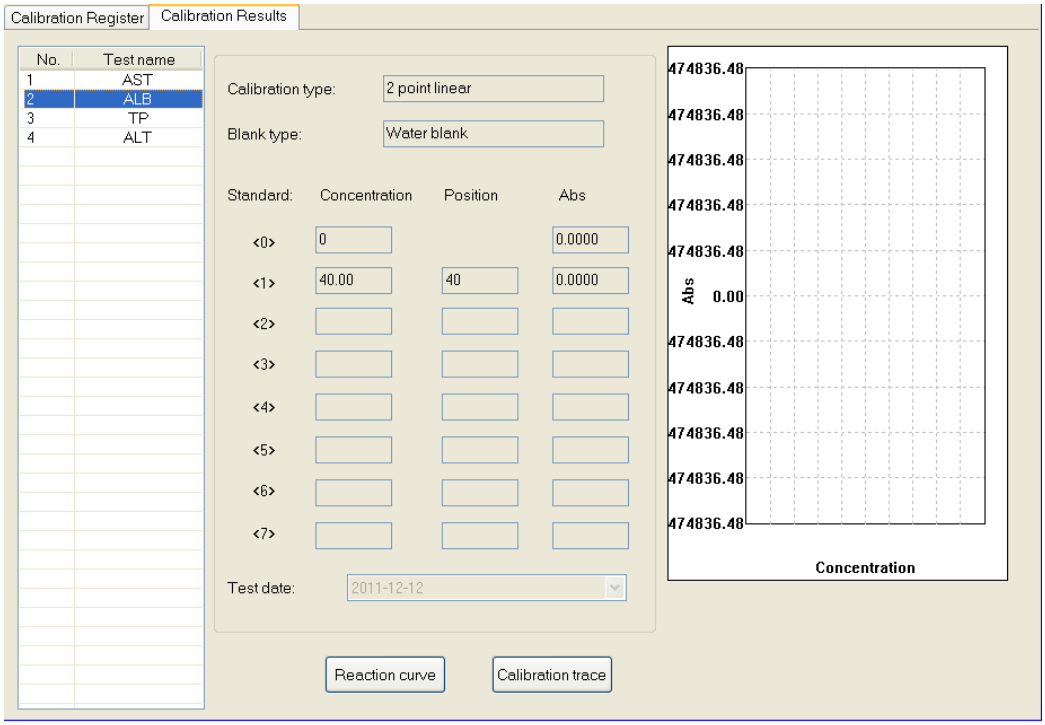
5.3.2. Calibration results



This screen allows you to view the calibration results, the reaction curve of standard solution, and the calibration curve.

- **Calibration type:** Display the selected test calibration type defined in ***Reagent/Reagent settings*** window.
- **Blank type:** Display the selected test blank type defined in ***Reagent/Reagent settings*** window.
- **Standard, Concentration, Position:** Display the selected test calibration information defined in ***Reagent/Reagent settings*** window.
- **Abs:** Display the standard solution absorbency after calibration.
- **Test date:** Display the latest and effective calibration test date.
- **Calibration curve:** Display the Calibration curve after calibration.
- **Reaction curve button:** Click this button to open reaction curve window. In this window, you can view the reaction curve of each standard solution.

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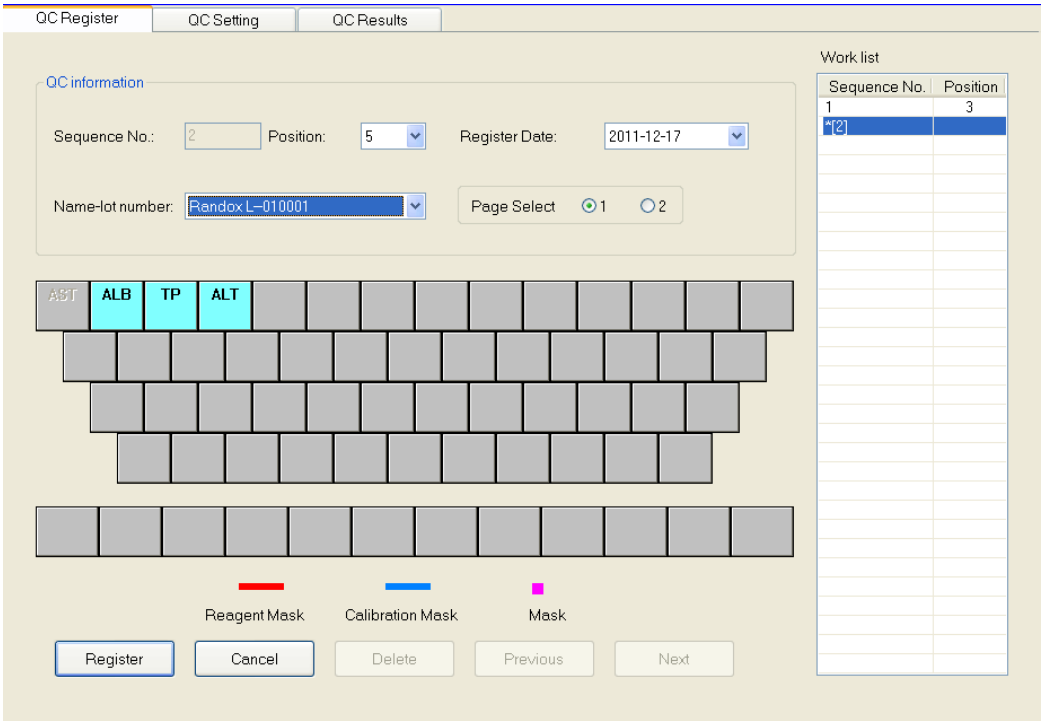
Culver City, CA 90210 U.S.A .
Tel.: (310) 202-0811/14
Fax: (310) 202-7286
Website: www.labomed.com
Email: spectro@labomed.com
Email: labomed1@aol.com

5.4. QC

5.4.1. QC register



This window allows you to register QC tests for QC

- **QC information:**
  - **Sequence No.:** Input a sequence number, it is also the test sequence of QC;
  - **Position:** Select a position number on sample tray (1-40);
  - **Register date:** Select the register date of the sample, the default is current operation system date;
  - **Name-lot number:** Select the QC name and lot number that prepare for testing.
  - **Page selected:** Select test key pages 1 and 2.
- **Test keys:** Use these keys for test selection.
  When a test key is selected, it is highlighted in blue.
- **Register button:** Click this button to save test selection information, update the work list and increment the sequence number by one so that test selection can be made for the next QC.
- **Cancel button:** Click this button to cancel any modification of the window.
- **Delete button:** Click this button to open Delete samples window. In this window, you can delete samples has already registered.
- **Previous button:** Click this button to display test selection information on the previous QC.
- **Next button:** Click this button to display test selection information on the previous QC

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Culver City, CA 90210 U.S.A .
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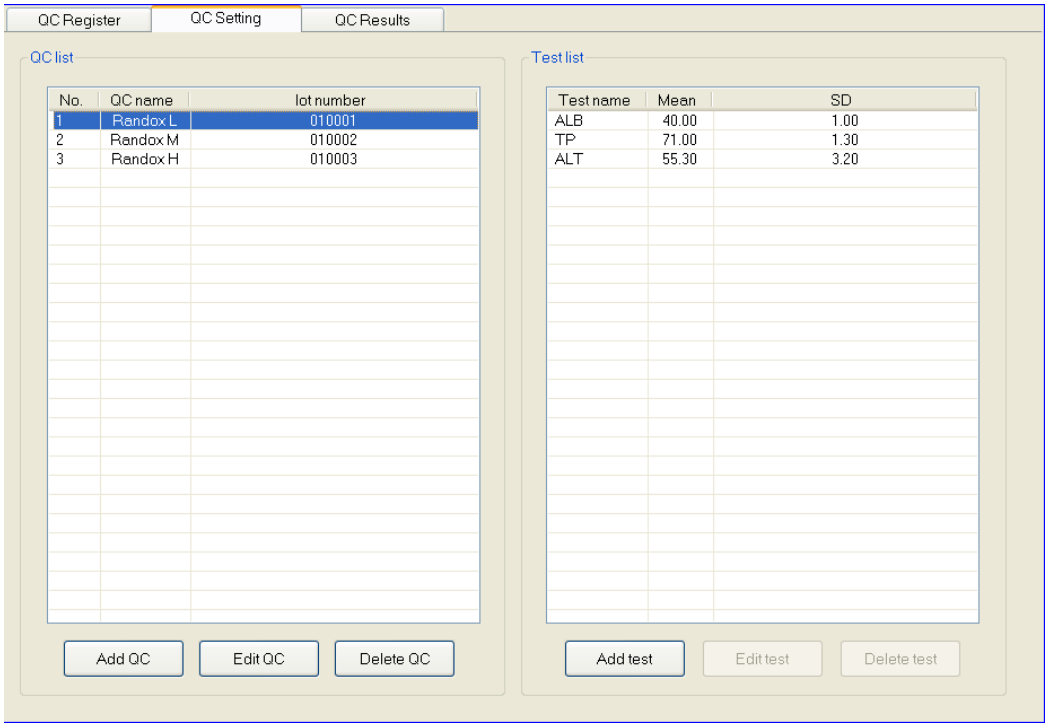
Fax: (310) 202-7286
Website: www.labomed.com
Email: spectro@labomed.com
Email: labomed1@aol.com

5.4.2. QC setting



This screen allows you to setup QC information and QC test information. Setup the target and SD value for QC results processing.

- **QC list:** Display the QC information.
- **Test list:** Display the QC test information.
- **Add QC button:** Click this button to open Add QC window.
  In this window, you can add a new QC with lot number to the QC list.
- **Edit QC button:** Click this button to open Edit QC window.
  In this window, you can edit the information of selected QC in the QC list.
- **Delete QC button:** Click this button to delete the selected QC in the QC list.
- **Add test button:** Click this button to open Add test window.
  In this window, you can select tests and set up target values for the QC selected in the QC list.
- **Edit test button:** Click this to open Edit test window.
  In this window, you can edit the information of selected test in the test list.
- **Delete test button:** Click this button to delete the selected test in the test list.

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Culver City, CA 90210 U.S.A.
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Fax: (310) 202-7286
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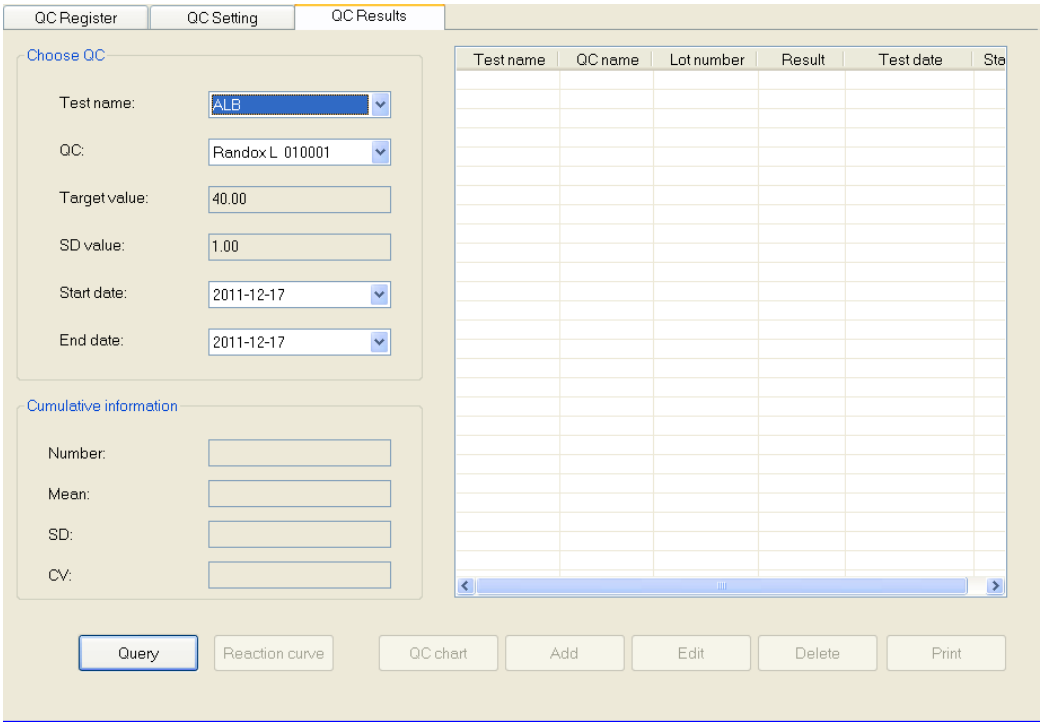
Email: labomed1@aol.com

5.4.3. QC results



This screen allows you to query and edit QC results, display cumulative information, and QC chart.

- **QC information:**
  - **Test:** Select a test that you prepare for searching;
  - **QC:** Select a QC that you prepare for searching;
  - **Target value:** Display target value of selected QC that defined in ***QC/QC setting*** window;
  - **SD value:** Display SD value of selected QC that defined in ***QC/QC setting*** window;
  - **Start date:** Input start date range that you prepare for searching;
  - **End date:** Input end date range that you prepare for searching.
- **Cumulative information:** Display cumulative information after clicking "Query" button.
  - **Number:** Display QC result numbers;
  - **Mean:** Display QC result mean value that automatically calculated;
  - **SD:** Display QC result SD value that automatically calculated.;
  - **CV:** Display QC result CV value that automatically calculated.
- **Query button:** After inputting QC information, click this button to display QC results that matched the QC information and calculate cumulative information of those results. The results displayed on QC results list.
- **Reaction curve button:** Display the reaction curve of selected in QC list.

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Email: spectro@labomed.com
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- **QC chart button:** Click this button to display QC chart of QC list.
- **Add button:** Click this button to open Add QC result window.
  In this window, you can input a new QC result.
- **Edit button:** Click this button to Edit QC result window.
  In this window, you can edit the QC result.
- **Delete button:** Click this button to Delete selected QC result in QC list.
- **Print button:** Click this button to print QC information and results in QC list.

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Fax: (310) 202-7286
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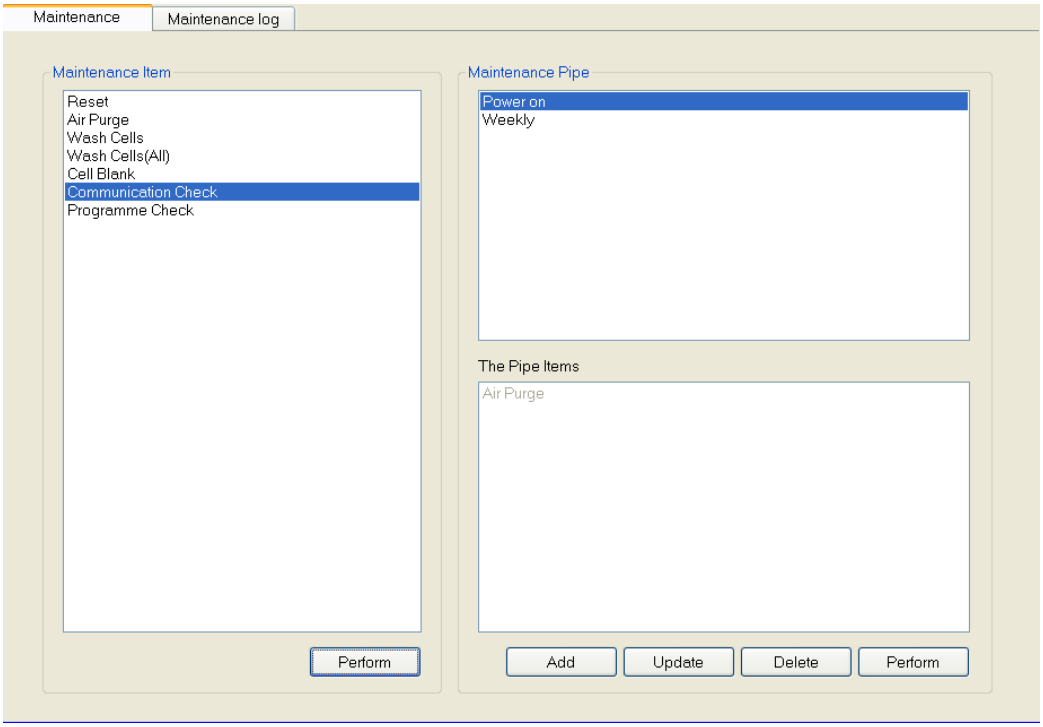
5.5. Maintenance

5.5.1. Maintenance



This screen allows you to execute a maintenance item such as Air purge and wash cells, and to set and execute a maintenance pipe. For addition, updating or deletion of a maintenance pipe.

- **Maintenance Item:** A list of maintenance items is displayed.
  For execution of a maintenance item, select it from the list and click the Perform button.
- **Perform button:** Click this button to open the Perform Maintenance Item window.
  In this window, you can execute the maintenance item selected from the Maintenance Item list.
- **Maintenance Pipe:** A list of registered maintenance pipe names is displayed.
  For execution of a maintenance pipe, select it from the Maintenance Pipe list and click the Perform button.
- **The Pipe Items:** A list of maintenance items registered in the maintenance pipe selected from the Maintenance Pipe list is displayed.
- **Add button:** Click this button to open the Add Pipe window.
  In this window, you can register the name and details of a maintenance pipe.
- **Update button:** Click this button to open the Update Pipe window.
  In this window, you can update the name and details of the maintenance pipe selected from the Maintenance Pipe list.

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Culver City, CA 90210 U.S.A .
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Email: spectro@labomed.com
Email: labomed1@aol.com

- **Delete button:** Click this button to delete the name and details of the maintenance pipe selected from the Maintenance Pipe list.
- **Perform button:** Click this button to open the Perform Maintenance Pipe window. In this window, you can execute the maintenance pipe selected from the Maintenance Pipe list.

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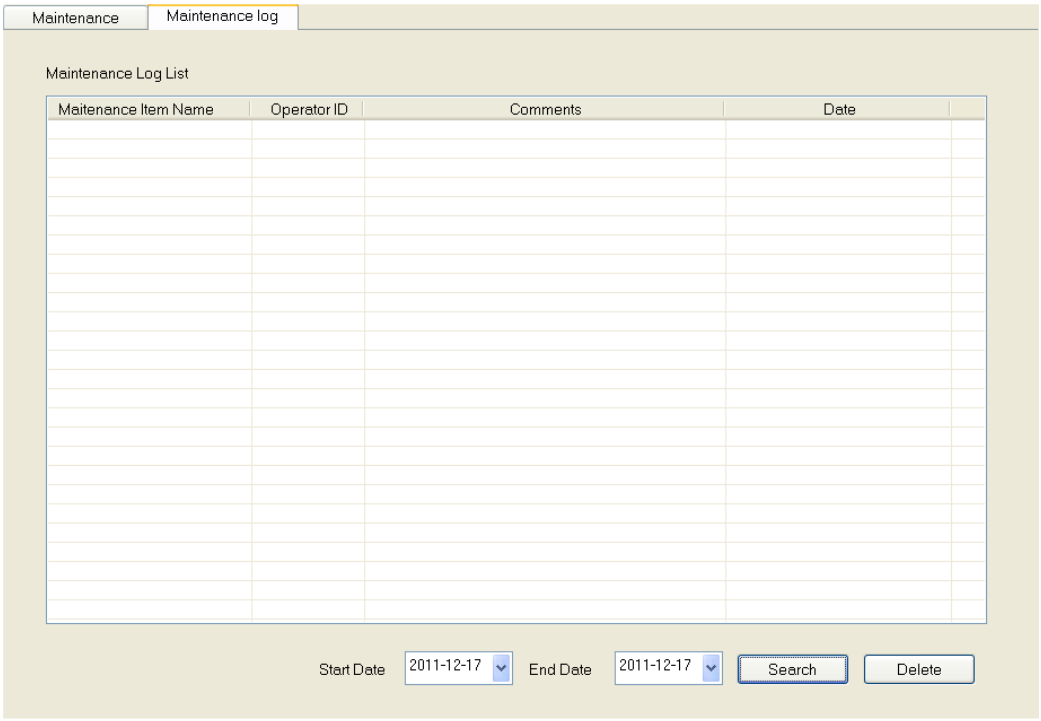
5.5.2. Maintenance log



This window allows you to view the maintenance log.

- **Maintenance Log list:**
  - **Maintenance item name:** Display Maintenance item name that has already done.
  - **Operator ID:** Display the operator ID that execute maintenance.
  - **Comments:** Display the comments that define in Maintenance/perform window.
  - **Date:** Display the execute date.
- **Start date:** select the start date prepare for searching.
- **End date:** select the end date prepare for searching.
- **Searching button:** Click this button to display the maintenance log within the date range.
- **Delete button:** Click this button to delete selected maintenance log in the list.

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Culver City, CA 90210 U.S.A .
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Fax: (310) 202-7286
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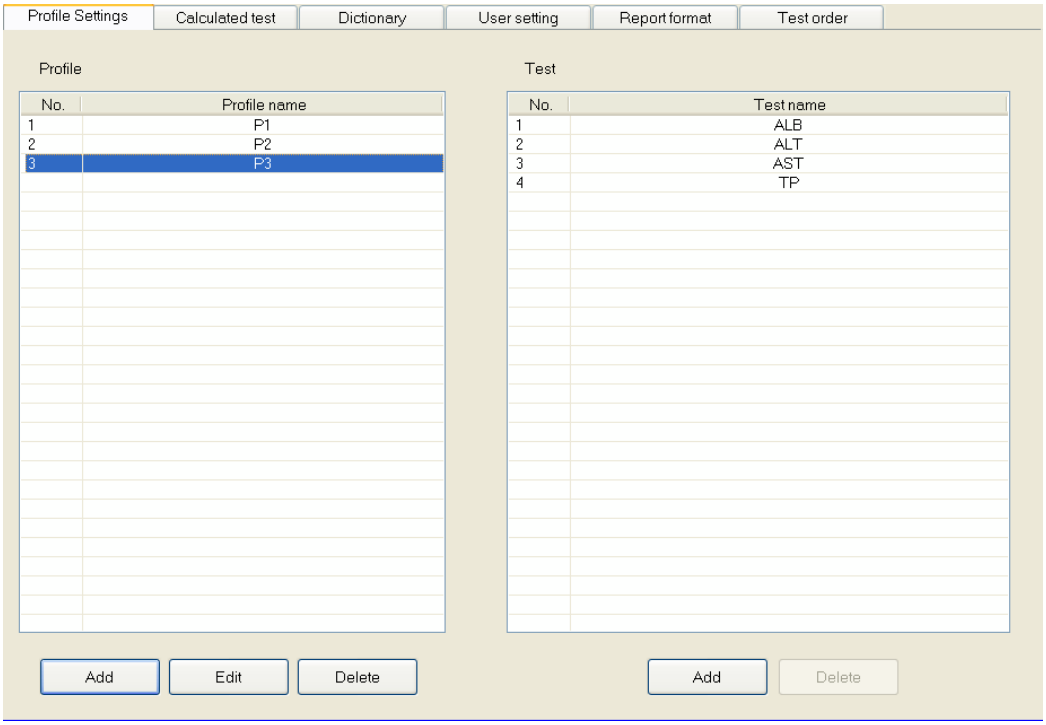
5.6. System setting

5.6.1. Profile setting



This window allows you to register a group of tests in a test key to be used for test registration.

- **Profile list:**
  - **Add button:** Click this button to open Add profile window.
    In this window, you can add a profile in the profile list.
  - **Edit button:** Click this button to open Edit profile window.
    In this window, you can edit the name of selected profile in the profile list.
  - **Delete button:** Click this button to delete selected profile in the profile list.
- **Test list:**
  - **Add button:** Click this button to open Add test button.
    In this window, you can specify tests to be registered in the profile selected in the profile list.
  - **Delete button:** Click this button to delete test selected in the test list.

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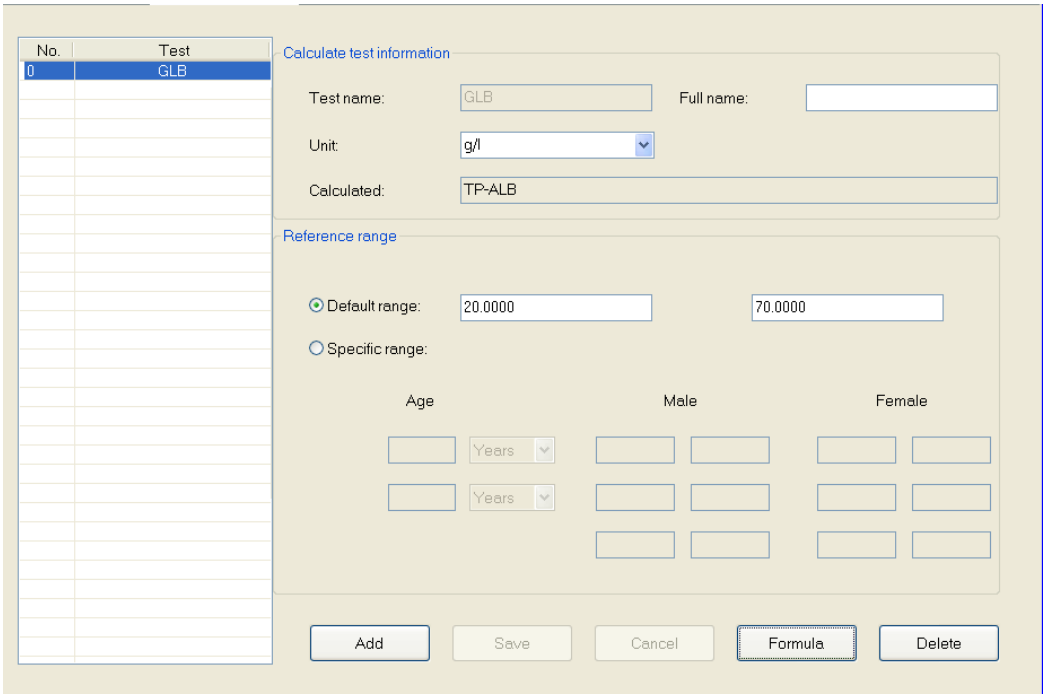
5.6.2. Calculated test



This screen allows you to set a calculation formula for calculation from the result of measurement with the instrument.

- **Calculate test information:**
  - **Test name:** Input the name of calculate test;
  - **Full name:** input full name for printout in report format. It can be void.
  - **Unit:** Selected or Input the result unit
  - **Calculated:** Display the calculated formula. After click the Formula button to open the Formula Calculator window and input a calculation formula.
- **Reference range:** Input the result reference range.
- **Add button:** Click this button to prepare adding a new calculate test.
- **Save button:** Click this button to save the configuration after adding or updating.
- **Cancel button:** Click this button to cancel the modification of this window.
- **Formula button:** Click this button to open Formula window. In this window, you can setup a calculated formula for the test.
- **Delete button:** Click this button to delete the selected calculated test.

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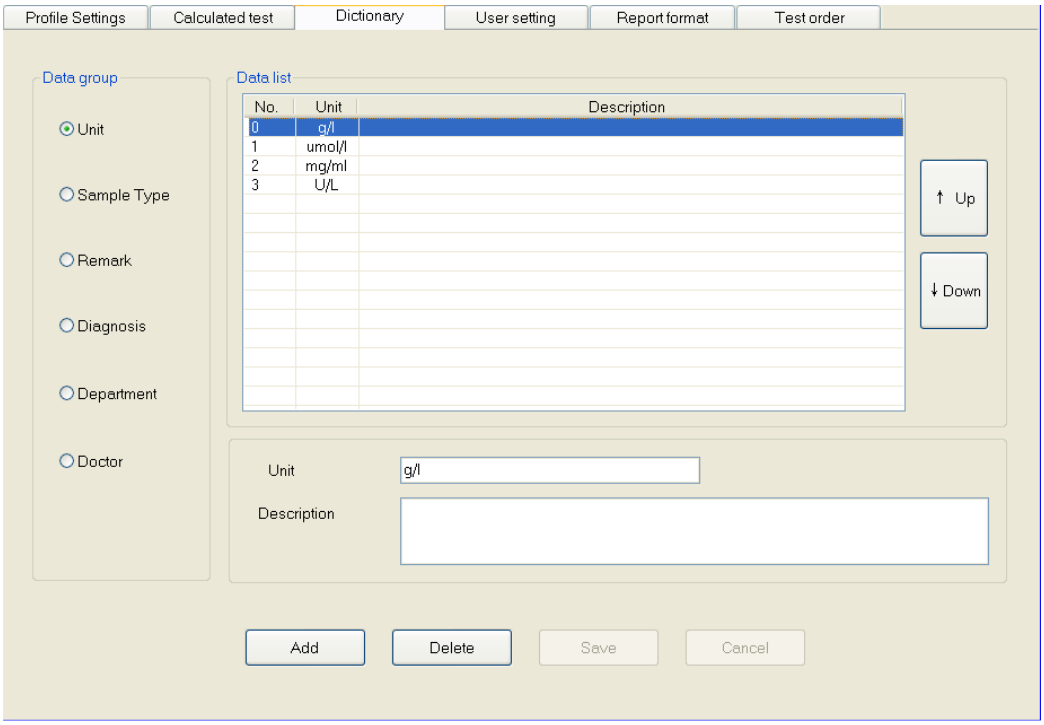
5.6.3. Dictionary



This window allows you to setup the data list that can be selected in some other window.

- **Data group: Choose a data style in this group.**
- **Add button:** Click this button to prepare adding a new element. After clicking this button, then input a new element such as a new unit and description (it can be void), then click save button to add in the data list.
- **Delete button:** Click this button to delete the selected data in the data list.
- **Save button:** Click this button to save the configuration.
- **Cancel button:** Click this button to cancel any modification.
- **Up button:** Click this button to move up the selected data in the data list.
- **Down button:** Click this button to move down the selected data in the data list.

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Culver City, CA 90210 U.S.A .
Tel.: (310) 202-0811/14
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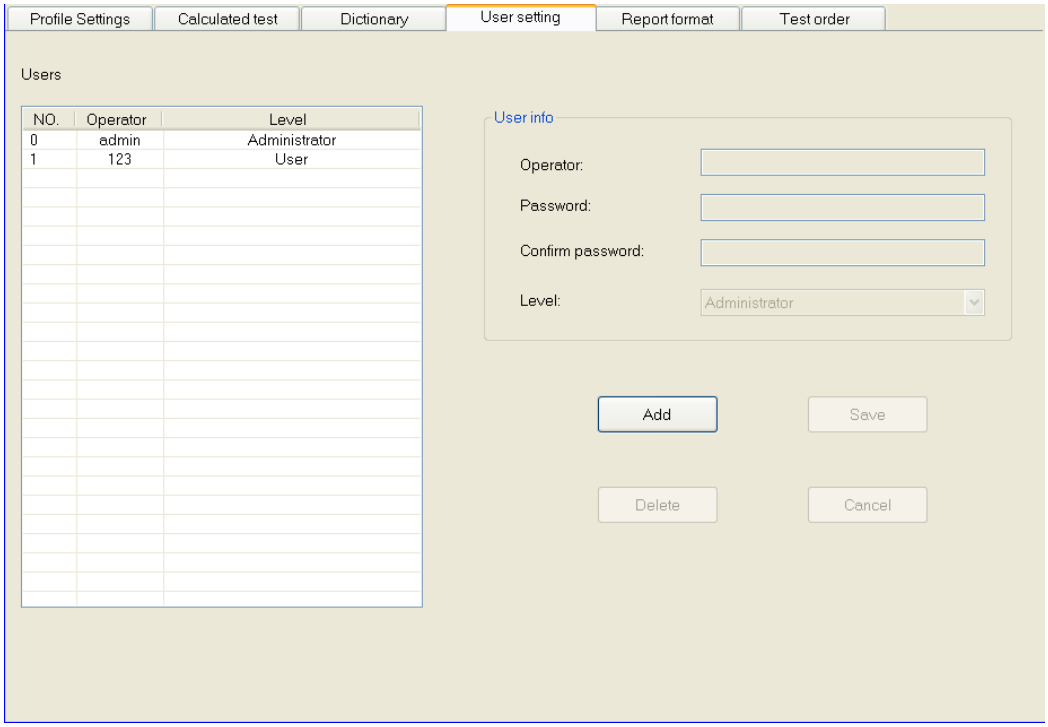
Email: labomed1@aol.com

5.6.4. User setting



This window allows you administrate the operator of the software.

- **User information:** Input user information after clicking add button.
  - **Operator:** Input operator name.
  - **Password:** Input password.
  - **Confirm password:** Input password again.
  - **Level:** Select the operator authority
- **Add button:** Click this button to prepare add a new User.
- **Save button:** Click this button to save the user in users list after inputting user information.
- **Delete button:** Click this button to delete selected user in users list.
- **Cancel button:** Click this button to cancel any modification

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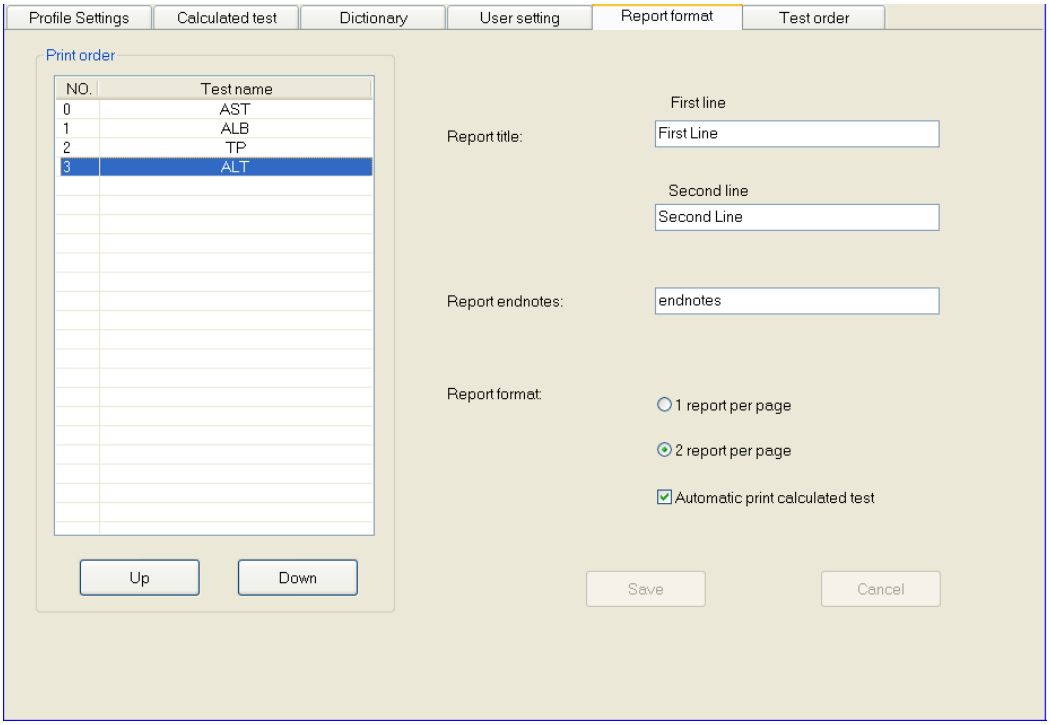
5.6.5. Report format



This screen allows you to set conditions for printout of the measurement result in report format.

- **Print order:** Display the print order in report.
- **Up button:** Click this button to move up selected test in the print order list.
- **Down button:** Click this button to move down selected test in the print order list.
- **Report title:** Input a head of report, include first and second line of the head.
- **Report endnotes:** Input a endnotes of report.
- **Report format:** selected 1 report per page or 2 report per page and automatic print calculated test or not.
- **Save button:** Click this button to save configuration.
- **Cancel button:** Click this button to cancel any modification.

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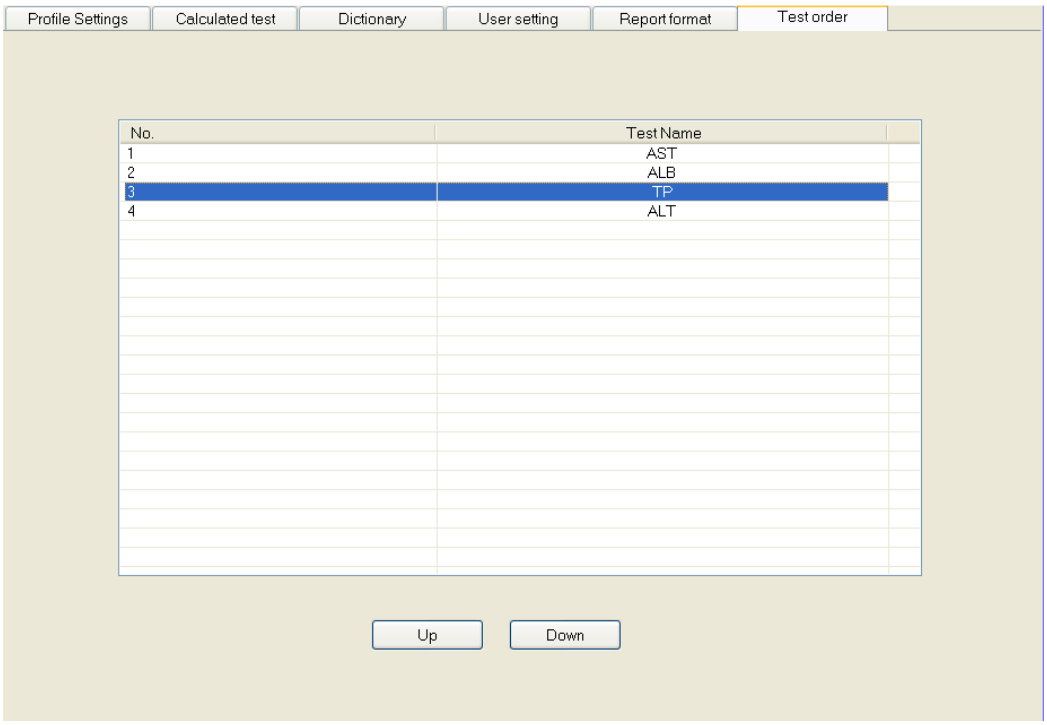
5.6.6. Test order



This window allows you to set the test order to prevent carry over of different reagent. This order is also the display order on the test keys.

- **Up button:** Click this button to move up the selected test.
- **Down button:** Click this button to move down the selected test.

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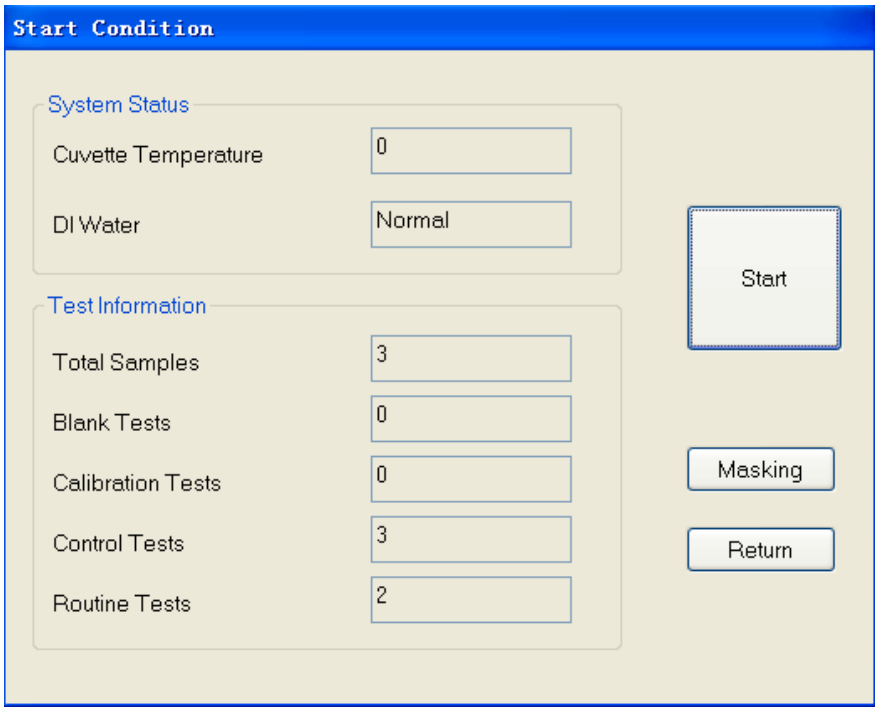
5.7. Start condition



This window allows you to set analysis start conditions. When starting analysis, check the analysis start conditions and then click the Start button.

- **Cuvette temperature:** Display the real-time temperature of reaction cells.
- **DI water:** Display the DI water status, normal or insufficient.
- **Total samples:** Display total samples number of registered.
- **Blank tests:** Display the blank tests number of registered.
- **Calibration tests:** Display calibration tests number of registered.
- **Control tests:** Display QC tests number of registered.
- **Routine tests:** Display routine sample tests number of registered.

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5.8. Sample stop and stop

: Click this button, the analyzer will stop sampling after confirmation, continue testing. And you can continue sampling by click start condition button.

: Click this button, the analyzer will stop doing anything immediately after confirmation.

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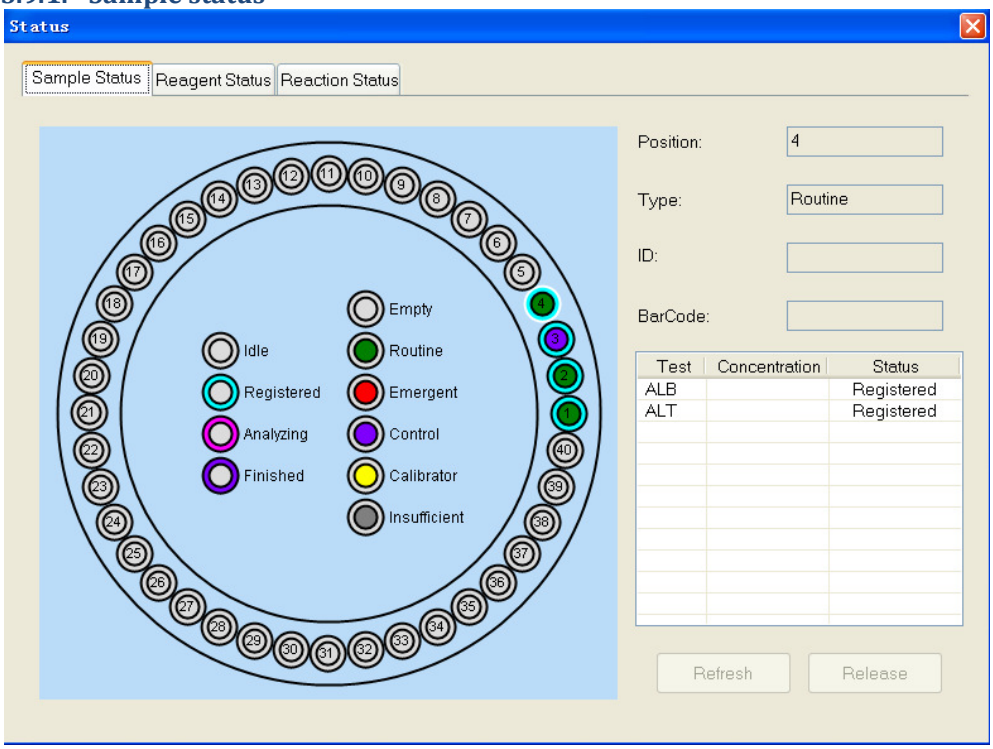
5.9. Status

5.9.1. Sample status



This window allows you to view sample tray status in any time, and release the sample position after finishing test. Click a position to display its information on the right.

- **Idle:** The position is idle. Nothing is to be analyzed
- **Registered:** The position has already registered by sample, calibrator or QC.
- **Analyzing:** The position is being analyzed by sample, calibrator or QC.
- **Finished:** The position has already finished test by by sample, calibrator or QC.
- **Empty:** The position is blank, Nothing is placed.
- **Routine:** The position is placed by routine sample.
- **Emergent:** The position is placed by emergency sample.
- **Control:** The position is placed by QC.
- **Calibrator:** The position is placed by calibrator.
- **Insufficent:** The liquid is insufficient in this position.
  If it is sample, system will mask all tests of this sample, and alarm in Alarm window.
  If it is QC, system will mask all tests of this QC, and alarm in Alarm window.
  If it is calibrator, system will mask all tests of this reagent, and alarm in Alarm window.
  After filling liquid, clicking Refresh button, system will do those tests again.
- **Refresh button:** Click this button to refresh the liquid volume after filling, system will continue analyzing the tests.

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- **Release button:** Click this button to release the position, otherwise , it cannot be registered by new sample, QC or calibrator.

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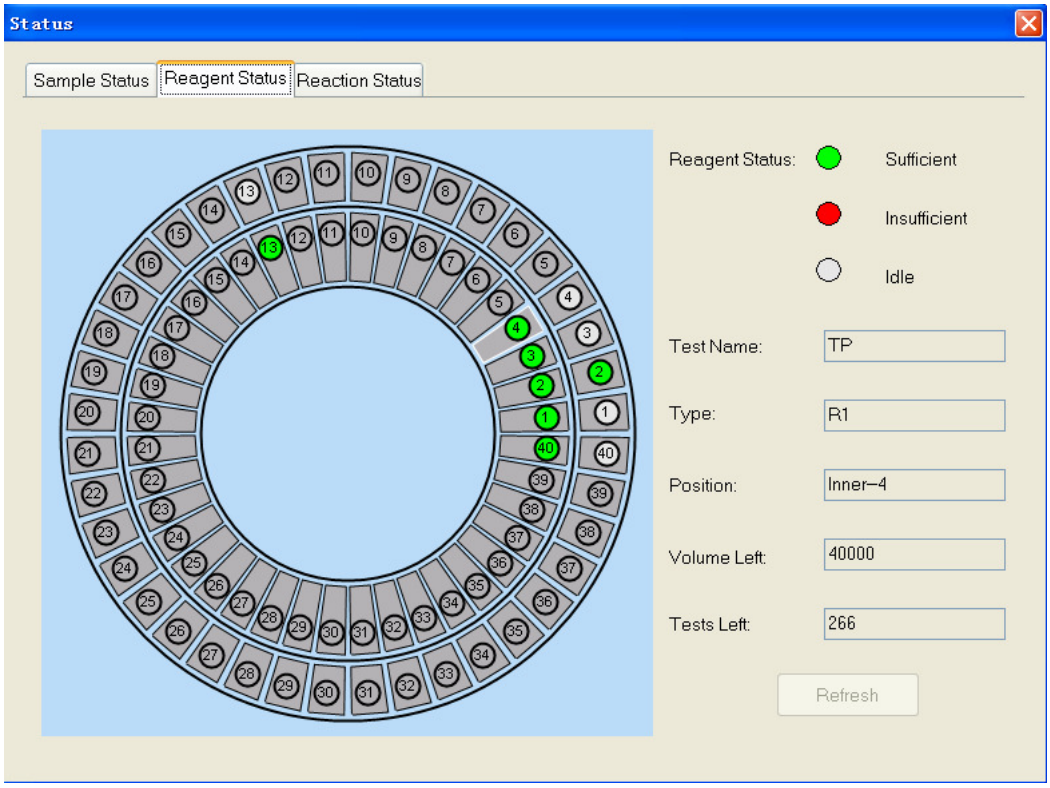
5.9.2. Reagent status



This window allows you to view reagent tray status in any time. Click a position to display its information on the right.

- Reaction status:
  - **Sufficient:** The reagent is sufficient.
  - **Insufficient:** The reagent is insufficient, and system will mask all tests of this reagent. After filling reagent, clicking Refresh button, system will do it again.
  - **Idle:** The position is blank.
- **Test name:** Display the test name of selected position.
- **Type:** Display the reagent type, only R1 or R1@R2
- **Position:** Display the selected position number.
- **Volume left:** Display the volume left of reagent bottle that auto calculated.
- **Tests left:** Display the available tests left of reagent bottle that auto calculated.
- **Refresh button:** Click this button to refresh the reagent volume after filling, system will continue analyzing the tests.

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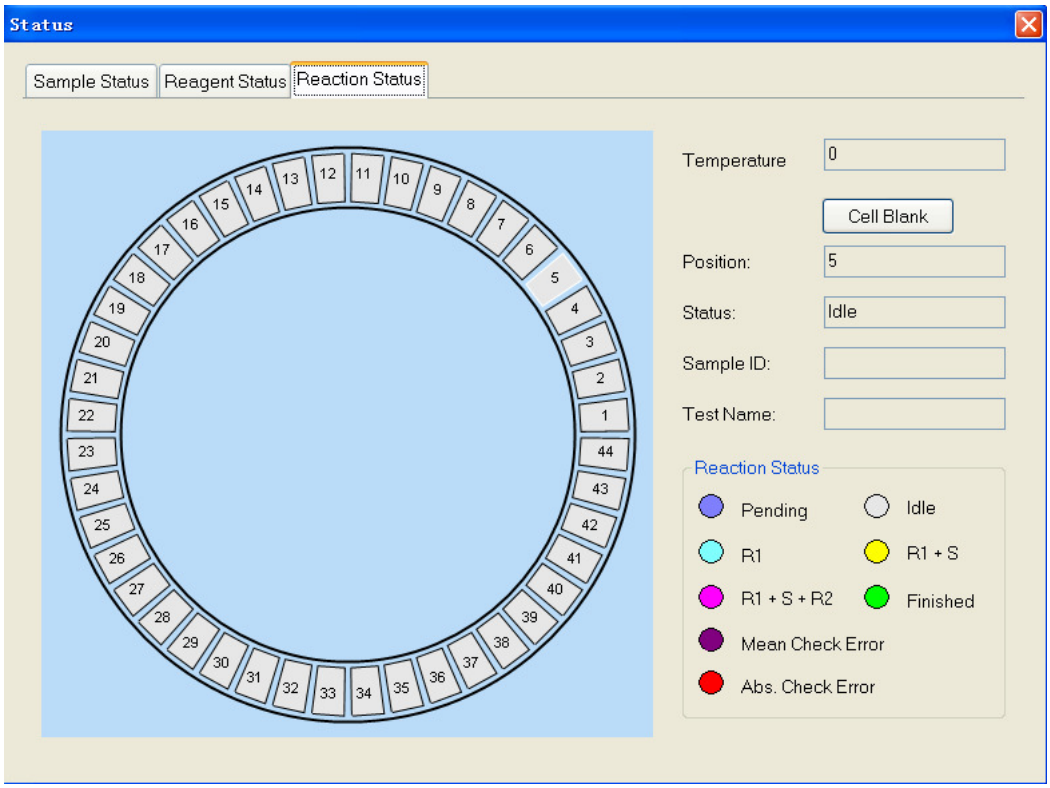
5.9.3. Reaction status



This window allows you to view reaction tray status in any time. Click a position to display its information on the right.

- **Temperature:** Display the real-time temperature of reaction tray.
- **Cell blank button:** Click this button to open Cell blank window.
  In this window, you can view selected cell blank that latest 10 times
- **Position:** Display the selected position number.
- **Sample ID: Display**
- **Test name:** Display the selected reaction test name.
- **Reaction status:**
  - **Pending:** The cell is washed and occupied.
  - **Idle**: The cell is clean, cell bank checking passed.
  - **R1:** Dispensing first reagent.
  - **R1+S:** Dispensing sample.
  - **R1+S+R2:** Dispensing second reagent.
  - **Finished:** Measurement is finished with results calculated.
  - **Mean check error:** The cell is abnormal because of mean check error. System will abandon this cell in running state.
  - **Abs. check error:** The cell is abnormal because of Abs. check error. System will abandon this cell in running state.

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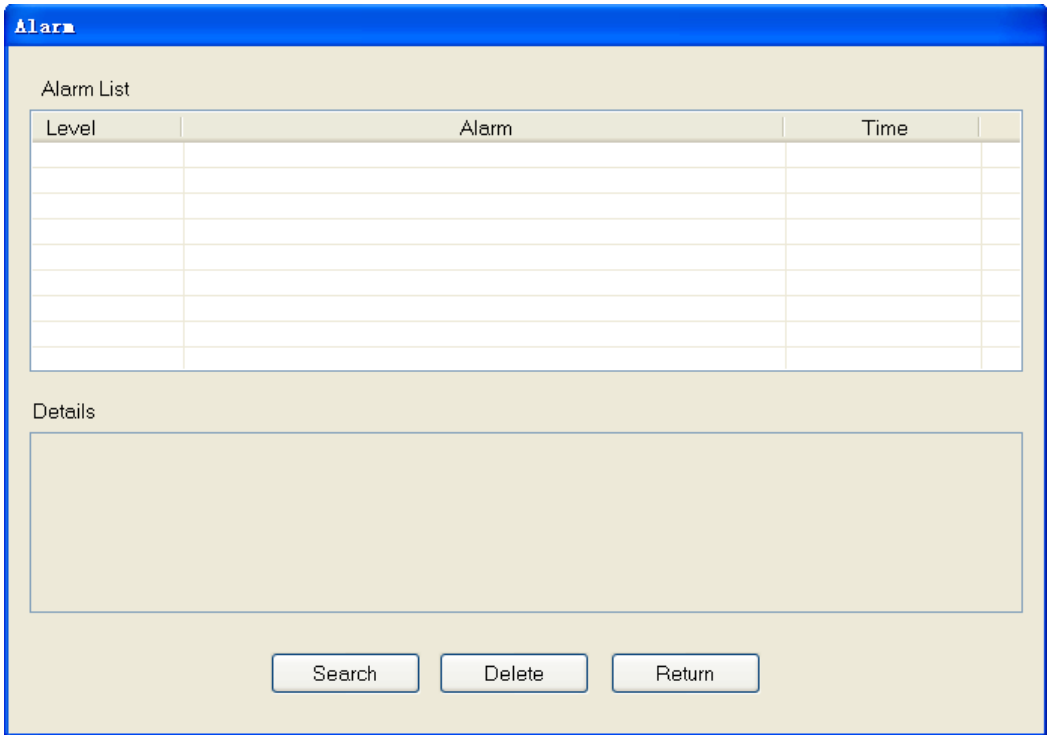
5.10. Alarm



If an alarm is caused by any trouble, this window displays the detailed explanation of the alarm (alarm level, alarm name and occurrence time) and the cause and remedy for it. Close the window after checking the details of the alarm and taking necessary measures.

- **Alarm list:** The following are displayed for each alarm.
  - **Level:** Instrument alarms are classified into four levels; warning, S.STOP (sampling stop), STOP (stop)
  - **Alarm:** Display alarm name.
  - **Time:** Display Occurrence time of alarm
- **Details: F**or the alarm selected in the alarm list, the detailed description and remedial measures are displayed.
- **Search button:** Click this button to open search condition window.
  In this window, you can search history alarm.
- **Delete button:** Click this button to delete selected alarm in alarm list.
- **Return button:** Click this button to close this window.

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6. SERVICE AND MAINTENANCE

6.1. Daily maintenance

Please obey following maintenance steps:

- Executing Air purge

Executing Air purge in maintenance window. When you do analysis first time or the analyzer is long time in standby, Air bubbles will come into dispensing tube, Execute Air purge to get rid of those air bubbles, The flow path is filled with new water

- Checking Syringe

You will see the syringes on the left side of analyzer. Check whether the syringe leaks . if leaks, tighten the screw cap. If still leaks, please contact technical support.

Screw cap

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- Checking to see if the recycle liquid is sufficient

You will see the recycle bottle on left side of analyzer,.

if it is insufficient, turn off the Device power first, pull out the cover cap, and filling DI water by a Curved mouth bottle. After filling, install the cover cap

Sufficient when DI water level is here

Insufficient when DI water level is here

Curved mouth bottle

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6.2. Weekly maintenance

- Executing cell blank
  Executing cell bank in maintenance window, if there are something abnormal (Abs. check error, Mean check error), it will alarm in Alarm window. Do it again, if the abnormal still occur, please contact technical support.

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7. TROUBLE SHOOTING

The table below lists some simple way of trouble shooting. User can do it according to the steps. If cannot solve, please contact technical support.

Error phenomenon	Probable causes→ Correction actions
Instrument doesn't work or no lighting of the power indicator	1. Socket loose or contact undesirable→ Reconnect and fixed socket and the power cable. 2. Power cable loose or contact undesirable→Reconnect and fixed power cable.
Communication error	1. USB cable loose or contact undesirable→Reconnect and fixed USB cable. 2. Strong electromagnetic interference→Re plug the USB port on operation computer side and restart operation software.
Dispensing probe drop water	1. Air bubble come into dispensing tube→Execute Air purge in maintenance window
Water overflow in washing station	1. Waste bottle is full→ Empty the water solution. 2. The waste tubing is bent or clogged→Rehandle the waste tubing and ensure it is nether bent nor clogged.
Mean check error of reaction cell	1. The cell is dirty→Execute Wash Cells in maintenance window. 2. There are too much scratch on cell surface→Replace a new reaction cell.
Abs. check error of reaction cell	1. The cell is dirty→Execute Wash Cells in maintenance window 2. There are too much scratch on cell surface→Replace a new reaction cell.
Dispensing probe liquid sensor is abnormal	1. The ground connection of power socket is not well→ ensure the ground connection is well.